

WHAT IS CLAIMED IS:

1 1. A method of treating a subject having a disorder characterized by the presence of
2 one or more tumors comprising inserting one or more miniaturized concentrated neutron
3 emitting source(s) into said tumor(s) and maintaining the source(s) in the tumor for a time
4 sufficient to eradicate the cells of the tumor(s).

2. The method of claim 1, wherein said tumor is malignant.

1 3. The method of claim 2, wherein said tumor is located in said
2 subject's brain, cervix, oral cavity, esophagus, skin, lung, bladder, pancreas,
3 prostate, intestine, stomach, thyroid gland, ovary, breast, or kidney.

1 4. The method of claim 2, wherein said tumor is located in said
2 subject's brain.

1 5. The method of claim 4, wherein said tumor is a glioblastoma, an astrocytoma, a
2 schwannoma, a malignant meningioma, an oligodendroglioma, a medulloblastoma, or a
3 ependymoma.

1 6. The method of claim 1, wherein said miniaturized concentrated neutron emitting
2 source comprises californium-252.

1 7. A method of treating a subject having a disorder characterized by the presence of
2 one or more tumors comprising surgically removing the majority of said tumor(s) and
3 subsequently inserting a miniaturized concentrated neutron emitting source into the space

4 previously occupied by the tumor(s) for a time sufficient to eradicate any tumor cells not
5 surgically removed.

8. The method of claim 7, wherein said tumor is malignant.

1 9. The method of claim 8, wherein said tumor is located in said
2 subject's brain, cervix, oral cavity, esophagus, skin, lung, bladder, pancreas,
3 prostate, intestine, stomach, thyroid gland, ovary, breast, or kidney.

1 10. The method of claim 7, wherein said tumor is located in said
2 subject's brain.

1 11. The method of claim 10, wherein said tumor is a glioblastoma, an astrocytoma,
2 a schwannoma, a malignant meningioma, an oligodendroglioma, a medulloblastoma, or a
3 ependymoma.

1 12. The method of claim 7, wherein said miniaturized neutron emitting source
2 comprises californium-252.

1 13. The method of claim 1 or claim 7, further comprising localizing a neutron
2 capture compound to the cells of said tumor prior to insertion of said miniaturized neutron
3 source.

1 14. The method of claim 13, wherein said neutron capture compound comprises
2 boron-10.

1 15. The method of claim 13, wherein said neutron capture compound comprises
2 gadolinium-157.

1 16. The method of claim 13, wherein said neutron capture compound is localized to
2 said tumor cells by systemic administration of said compound.

1 17. The method of claim 13, wherein said neutron capture compound is localized to
2 said tumor cells by direct administration of said compound to said tumor cells.

1 18. The method of claims 1 or 7, wherein said miniaturized concentrated neutron
2 emitting source is 3 – 6 mm in length, has an outside diameter of .50 -2 mm, and comprises
3 between 100µg and 1 mg of californium-252.